



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/616,140

07/09/2003

Daniel J. Turk

3994994-144415

2080

23570

7590

01/19/2010

PORTER WRIGHT MORRIS & ARTHUR, LLP
INTELLECTUAL PROPERTY GROUP

41 SOUTH HIGH STREET

28TH FLOOR

COLUMBUS, OH 43215

EXAMINER

KIM, EUNHEE

ART UNIT

PAPER NUMBER

2123

MAIL DATE

DELIVERY MODE

01/19/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/616,140	Applicant(s) TURK ET AL.	
	Examiner Eunhee Kim	Art Unit 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/21/2009 has been entered.

2. The amendment filed 09/21/2009 has been received and considered. Claims 33-43 are presented for examination.

Claim Objections

3. Claim 41 and 43 are objected to because of the following informalities: Period is missing. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 33-35 and 37-43 rejected under 35 U.S.C. 103 (a) as being unpatentable over Faruque et al. (U.S. Pub. No 2003/0149500), in view of Hazama et al. (U.S. Patent No. 6,212,441).

As per claim 33, Faruque et al. teaches A system for refining the design of a mechanical assembly (Abstract, Fig. 1, Paragraph [0027]) including:

a self-updating library database associated with white body model information derived from separate sources having discrete functional identities involved in the enterprise development of a mechanical assembly (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], [0041], [0052]);

work stations associated with the design, assembly and simulation departments, each work station 1) associated with at least one of the individual members of the design, assembly

and simulation task groups and 2) physically located apart from the library database (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], and [0041]);

separate data files and separate program functions stored in a retrievable format assembled in one or more lists 1) identifying a model of a mechanical assembly to be simulated (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], and [0041]);

2) identifying, with respect to the mechanical assembly to be simulated, parts of the mechanical assembly, characteristics of the parts, connections capable of use with the parts, and characteristics of the connections used with the mechanical assembly (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], and [0041]-[0043]); and

3) identifying virtual data files associated with the parts, connections and characteristics (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], and [0041]-[0043]);

the library including a master record database wherein separate data files and separate program functions are maintained, the data files and program functions being accessible by a task group member from a work station upon the selection of a data file and program function from a menu; (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], and [0041]-[0043]):

a network linking the work stations and the master record database (Fig. 1, [0027]);

one or more menu associated with the data files and program functions, the menu accessible at a work station and including functions for selecting from the menu the parts to be conjoined in a simulation assembly model, and, upon the selection of the parts,

directing a central processor in the library (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], and [0041]-[0043]) to

1) retrieve the data files associated with the parts (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], and [0041]-[0043]);

2) associate the parts and the characteristics of the parts retrieved (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], and [0041]-[0043]);

3) select one or more connection joining the parts (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], and [0041]-[0043]);

4) retrieve the data files from the library associated with the one or more connection selected (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], and [0041]-[0043]);

5) associate the characteristics of the one or more connection selected with parts in a simulation assembly model wherein the selected parts are conjoined by the connection selected (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], and [0041]-[0043]);

6) process the selected parts through a mesh process (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0038], and [0041]-[0043]);

7) save the mesh data in the master record database (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

8) build the simulation mode (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

9) translate data associated with the model as built into a data record having a virtual simulation format (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

10) select a simulation of the model to be evaluated (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

11) record the data record of the characteristics of the simulation model upon the performance of the virtual simulation (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

12) create, upon the completion of the virtual simulation, as a discrete menu list item for selection from the library database, the data record of the simulation model and the characteristics of the simulation of the model such that a task group member can select and retrieve from the library database the discrete data file records associated with the model evaluated; (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

whereby successive data files of models evaluated are preserved in a continuous loop with respect to refinements and the data files of modified models become accessible for subsequent use (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043], [0048]-[0052]).

Faruque et al. fails to teach explicitly a plurality of workstations.

Hazama et al. teaches a plurality of workstations (Fig. 1).

Faruque et al. and Hazama et al. are analogous art because they are both related to a method of a design system.

Therefore, it would have been obvious to one of ordinary skill in the art of at the time the invention was made to include a plurality of workstations of Hazama et al., in the method of interactively assembling a model of Faruque et al. because the a plurality of workstations is a well known process for a ordinary skilled artisan in a method of interactively assembling a model. Hazama et al. teaches an advantageous system that provides central stored the design and the job so they can be easily accessed and retrieved from any area in the factory (Col. 4 lines 9-35).

As per claim 34, Faruque et al. teaches a continually updated data loop among the work stations and the library whereby a data file record of the characteristics of the simulation model and the results of the simulation performed upon the model are maintained such that the data record of the model and the characteristics of the simulation replace in the library any previous data file record associated with a previous rendition of the simulation model and the characteristics of the previous rendition. (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043], [0048]-[0052]).

As per claim 35, Faruque et al. teaches wherein the data file of the simulation model includes data concerning crash impact, durability and noise characteristics of the model

retrievable at the work stations of the task group members associated in the enterprise development of a mechanical assembly (Fig. 1-4E, Paragraph [0021], [0025], [0033]).

As per claim 37, Faruque et al. teaches wherein the menu accessible from the work stations includes a list from which a program function associated with a mesh part database is selected (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]).

As per claim 38, Faruque et al. teaches wherein a work station includes a limited menu restricting access of the work station to one or more combined functions selected from the group of (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]):

1) selecting a plurality of parts and retrieving the data files associated with the parts selected (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

2) associating with the mechanical assembly the selected parts and the characteristics of the parts retrieved (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

3) selecting a connection and retrieving the data files from the library associated with the connection (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

4) associating the characteristics of the connection selected with selected parts in a simulation model in which the selected parts are to be conjoined (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

5) processing the associated connections and parts through a mesh process (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

5) processing the connections and parts through a mesh mechanism (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

6) saving the mesh data in a database (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043], [0052]);

7) building the simulation model and translating data associated with the model into a data record having a virtual simulation format (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

8) performing a virtual simulation of the model and recording a data record of the characteristics of the simulation (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

9) compiling the data record of the simulation model and the characteristics of the simulation in a format retrievable as a menu item in the library. (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]).

As per claim 39, Faruque et al. teaches a continuous loop data library for refining the design of a white body model from the beginning of a design process to the end of a design process for a simulation model of a mechanical assembly (Abstract, Fig. 1-4, the description, [0052]) comprising:

a central self updating library database that includes a menu selectable list of parts data records, CAD data, mesh data, parts connection data, parts assembly data, stock parts data, and parts evaluation data (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

individual sources of simulation model information related to the discrete categories of design, assembly and simulation of a white body, the information sources separately accessible to distinct design, assembly and simulation testing groups of an enterprise wherein members of each group are separately associated with the design, assembly and simulation functions of the enterprise involved in the development of a mechanical assembly (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

work station, each work station located apart from the library database, the work stations interconnected with the library in a spoke network with respect to a central library hub wherein the work stations are uniquely accessible by individual members of separate design, assembly and simulation groups involved, respectively, in correspondence with the design, assembly and simulation testing responsibilities group members with regard to the white body model (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

a limited menu at each work station restricting a member's access to the library at a work station in accordance with a member's association with a design, assembly or simulation group to functions associated with menu categories (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]) comprising:

- 1) selecting parts and retrieving the data files associated with the selected parts (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);
- 2) associating the selected parts and the characteristics of the parts selected with the mechanical assembly to provide a model (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

3) selecting a connection for associating parts to be joined with each other from the library and retrieving data files from the library associated with the connection (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

4) associating the characteristics of the connection selected with the selected parts and processing the associated connection and parts through a mesh process to provide an assembly mesh (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

5) saving data associated with the assembly mesh in a database (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]);

6) building a white body model and translating the model into a data record (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043], [0048]-[0052]);

7) performing a virtual simulation of the model; 8) recording a data record of the characteristics of the simulation (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043], [0048]-[0052]); and

8) returning the data record of the model and the characteristics of the virtual simulation of the model to the library (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043], [0048]-[0052]);

9) upon the completion of a virtual simulation of the white body model, replacing any prior record in the library of the mechanical assembly model simulated with a record of the model created and the characteristics of the simulation of the model processed (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043], [0048]-[0052]);

whereby successive data files of models evaluated are preserved in a continuous loop with respect to refinements and the data files of modified models become accessible for subsequent use (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043], [0048]-[0052]).

Faruque et al. fails to teach explicitly a plurality of workstations, and the work stations interconnected with the library in a network wherein the work stations are singly identifiable with task group members separately.

Hazama et al. teaches a plurality of workstations (Fig. 1), and the work stations interconnected with the library in a network wherein the work stations are singly identifiable with task group members separately (Fig. 1).

As per claim 40 and 42, Faruque et al. teaches wherein, in the process of building the white body model and associating mesh and connection data relating to the manner in which conjoined parts are joined in the assembly, imperfections in the mesh, are identified and fixed before a virtual simulation of the model is performed (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]).

As per claim 41 and 43, Faruque et al. teaches wherein, upon the approval of the results of a white body model simulation by the task group, the assembly simulated is fixed as a final design in the library (Fig. 1-4, Paragraph [0012], [0020]-[0027], [0029]-[0039], and [0041]-[0043]).

5. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faruque et al. (U.S. Pub. No 2003/0149500), in view of Hazama et al. (U.S. Patent No. 6,212,441).

Faruque et al. as modified by Hazama et al. teaches most all of the instant invention as applied to claims 33-35 and 37-43 above.

Faruque et al. as modified by Hazama et al. teaches selectable data files in the library database list include connections comprising welds, bonds, bolts, and pin joints (Faruque et al. : [0043]).

However, Faruque et al. as modified by Hazama et al. fails to explicitly teach sealers, adhesives, and ball joints.

It was known at the time the invention was made that various types of connecting means include sealers, adhesives, and ball joints for system of interactively assembling a model. At the time the invention was made, it would have been obvious to one of ordinary skill in the art of technology of modeling and virtual evaluation system for mechanical assemblies to various types of connecting means including sealers, adhesives, and ball joints. The motivation would have been to ensure the quality and consistency of the assembled mesh model, which results in improved the analysis (Faruque et al.: Paragraph [0035]).

Therefore it would have been obvious to modify Faruque et al. as modified by Hazama et al. to obtain the invention as specified in claim 36.

Response to Arguments

6. Applicant's arguments filed 09/21/2009 have been fully considered but they are not persuasive.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eunhee Kim whose telephone number is 571-272-2164. The examiner can normally be reached on 8:30am-5:00pm Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Eunhee Kim/
Examiner, Art Unit 2123

/Paul L Rodriguez/
Supervisory Patent Examiner, Art Unit 2123